

In re Application of:
Haberland, et al.

Application No. 09/580,721

IN THE CLAIMS

Applicant provides the following complete listing of all the claims in the application that shows the status of all pending claims and markings to show current changes:

THAT CLAIMED IS:

1. (Currently amended) A trocar system comprising:

a cannula having an elongate cannula body, the cannula body including medial and distal portions thereof having a first diameter and a proximal portion thereof connected to the medial portion and having a second diameter, the second diameter being larger than the first diameter, the medial portion includes a first section having the first diameter and a second section having a fourth diameter smaller than the first diameter; and

a trocar having an elongate trocar body for extending through the cannula, the elongate trocar body having a sharpened distal end portion, a medial portion thereof having a first diameter, a proximal portion having a second diameter, the second diameter being larger than the first diameter, a handle connected to a proximal end portion of the trocar body for gripping of and handling of the trocar by a hand of a user, and a shield slidably mounted to the medial portion of the trocar body and biased by biasing means in an extended position so that a distal end of the shield coveringly protects the sharpened distal end of the trocar body until pressure is applied thereagainst so that the shield slidably moves toward the proximal portion of the trocar body in a retracted position, the shield having a third diameter being equal to or less than the second diameter, and a shoulder extending radially inwardly from an inner surface of the shield body to define a shield stop positioned to provide a stop for the shield body when in an extended position, and the shield having a tubular-shaped shield body that substantially surrounds the second section of the medial portion of the trocar body, the biasing means is positioned substantially between an outer surface of the second section of the medial portion of the trocar body and an inner surface of the tubular-shaped shield body, and the biasing means extends between and is in contact with a distal portion of the first section of the medial portion of the trocar body and a proximal portion of the shield stop.

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Claim 2. (Canceled)

3. (Previously Presented) A trocar system as defined in Claim 1, wherein the shield stop is a first shield stop, wherein the trocar body further includes a trocar body transition region located between the medial portion of the trocar body and the proximal portion of the trocar body, the transition region having an outer surface extending outwardly from the medial portion to the proximal portion and defining a second shield stop when the shield is biased to the retracted position, and wherein the shield body is biased by the biasing means so that when pressure is applied to the shield body, the shield body slidably moves toward the proximal portion of the trocar body and contacts the second shield stop when in a fully retracted position.

4. (Previously Presented) A trocar system comprising:

a cannula having an elongate cannula body, the cannula body including medial and distal portions thereof having a first diameter and a proximal portion thereof connected to the medial portion and having a second diameter, the second diameter being larger than the first diameter;

a trocar having an elongate trocar body for extending through the cannula, the elongate trocar body having a sharpened distal end portion, a medial portion thereof having a first diameter, and a proximal portion having a second diameter, the second diameter being larger than the first diameter, the trocar also having a handle connected to a proximal end portion of the trocar body for gripping of and handling of the trocar by a hand of a user and a shield slidably mounted to the medial portion of the trocar body and biased in an extended position so that a distal end of the shield coveringly protects the sharpened distal end portion of the trocar body until pressure is applied thereagainst so that the shield slidably moves toward the proximal portion of the trocar body in a retracted position, the shield having a third diameter, the third diameter being equal to or less than the second diameter;

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wherein the shield has a tubular-shaped shield body that substantially surrounds the medial portion of the trocar body and biasing means positioned between an outer surface of the medial portion of the trocar body and an inner surface of the tubular-shaped shield body;

wherein the trocar body includes a trocar body transition region, the transition region having an outer surface extending outwardly from the medial portion to the proximal portion and defining a shield stop when the shield is biased to the retracted position; and

wherein the shield stop comprises a first shield stop, and wherein a second shield stop is connected to the trocar body and cooperates with the shield body to provide an alternative or an auxiliary stop for the shield body when moving to the retracted position.

5. (Previously Presented) A trocar system as defined in Claim 1, wherein the medial portion includes a first section having the first diameter and a second section having a fourth diameter smaller than the first diameter, and wherein the sharpened distal end portion includes a pyramidal tip and a base having a fifth diameter, the fifth diameter being larger than the fourth diameter of the medial portion of the trocar body.

6. (Previously Presented) A trocar system as defined in Claim 1, wherein the shield body has a distal end which extends beyond a distal end of the sharpened distal end portion of the trocar body, wherein the shield stop is a first shield stop, and wherein a second shield stop is connected to the trocar body and cooperates with the shield body to provide an auxiliary stop for the shield body when moving to the retracted position.

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7. (Currently amended) A trocar comprising:

an elongate trocar body for extending through a cannula, the elongate trocar body having a sharpened distal end portion, a medial portion thereof having a first diameter, and a proximal portion having a second diameter, the second diameter being larger than the first diameter, the medial portion includes a first section having the first diameter and a second section having a fourth diameter smaller than the first diameter;

a handle connected to a proximal end portion of the trocar body for gripping of and handling of the trocar by a hand of a user;

a shield slidably mounted to the medial portion of the trocar body and biased by a biasing means in an extended position so that a distal end of the shield coveringly protects the sharpened distal end of the trocar body until pressure is applied thereagainst so that the shield slidably moves toward the proximal portion of the trocar body in a retracted position, the shield having a third diameter equal to or less than the second diameter, the shield has a tubular-shaped shield body that substantially surrounds the second section of the medial portion of the trocar body, the biasing means is positioned substantially between an outer surface of the second section of the medial portion of the trocar body and an inner surface of the tubular-shaped shield body; and

a shoulder extending radially inwardly from the [[an]] inner surface of the shield body to define a shield stop positioned to provide a stop for the shield body when in an extended position, and the biasing means extends between and is in contact with a distal portion of the first section of the medial portion of the trocar body and a proximal portion of the shield stop.

Claim 8. (Cancelled)

9. (Currently Amended) A trocar as defined in Claim 7 [[8]], wherein the shield stop is a first

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shield stop, wherein the trocar body further includes a trocar body transition region located between the medial portion of the trocar body and the proximal portion of the trocar body, the transition region having an outer surface extending outwardly from the medial portion to the proximal portion and defining a second shield stop when the shield is biased to the retracted position, and wherein the shield is biased by the biasing means so that when pressure is applied to the shield body, the shield body slidably moves toward the proximal portion of the trocar body and contacts the second shield stop when in a fully retracted position.

10. (Previously Presented) A trocar comprising:

an elongate trocar body for extending through the cannula, the elongate trocar body having a sharpened distal end portion, a medial portion thereof having a first diameter, and a proximal portion having a second diameter, the second diameter being larger than the first diameter;

a handle connected to a proximal end portion of the trocar body for gripping of and handling of the trocar by a hand of a user; and

a shield slidably mounted to the medial portion of the trocar body and biased in an extended position so that a distal end of the shield coveringly protects the sharpened distal end of the trocar body until pressure is applied thereagainst so that the shield slidably moves toward the proximal portion of the trocar body in a retracted position, the shield having a third diameter, the third diameter being equal to or less than the second diameter;

wherein the shield has a tubular-shaped shield body that substantially surrounds the medial portion of the trocar body and biasing means positioned between an outer surface of the medial portion of the trocar body and an inner surface of the tubular-shaped shield body;

wherein the trocar body includes a trocar body transition region, the transition region having an outer surface extending outwardly from the medial portion to the proximal portion

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and defining shield stop when the shield is biased to the retracted positioned; and

wherein the shield stop comprises a first shield stop, and wherein a second shield stop is connected to the trocar body and cooperates with the shield body to provide an alternative or an auxiliary stop for the shield body when moving to the retracted position.

11. (Original) A trocar as defined in Claim 10, wherein the sharpened distal end portion has a fourth diameter, the fourth diameter being larger than the first diameter of the medial portion of the trocar body.

12. (Original) A trocar as defined in Claim 11, wherein the shield body has a distal end which extends beyond a distal end of the sharpened distal end portion of the trocar body.

13. (Previously Presented) A trocar as defined in Claim 7, wherein the handle includes a distal handle portion having a fourth diameter and a proximal handle portion having a fifth diameter, the distal handle portion connected to the proximal portion of the trocar body to provide handling of the trocar by a hand of a user, the fifth diameter of the proximal handle larger than the fourth diameter to provide gripping of the handle by the user.

14. (Previously Presented) A trocar comprising:

an elongate trocar body having:

a sharpened distal end portion adapted to extend through a cannula,

a medial portion including a first section having a first diameter and a second section having a second diameter smaller than the first diameter,

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a proximal portion having a proximal first end portion, a proximal second end portion having a third diameter larger than the first diameter, and an elongate body portion extending between the proximal first end portion and the proximal second end portion, and

a transition region located between the first section of the medial portion having the first diameter and the proximal portion having the third larger diameter to define a shield stop positioned to provide a stop for the shield body when in a fully retracted position; and

a shield having a proximal shield end, a distal shield end, and a shield body extending therebetween slidably mounted to the medial portion of the trocar body and biased by biasing means in an extended position so that the distal shield end coveringly protects the sharpened distal end portion until pressure is applied thereagainst so that when pressure is applied to the shield body the shield slidably moves toward the proximal portion of the trocar body and contacts the shield stop when in the fully retracted position.

15. (Previously Presented) A trocar as defined in Claim 14, wherein the shield stop is a first shield stop, wherein the trocar further includes a shoulder extending radially inwardly from an inner surface of the shield body to define a second shield stop positioned to provide a stop for the shield body when in an extended position, wherein the shield body substantially surrounds the second section of the medial portion of the trocar body, wherein the biasing means is positioned substantially between an outer surface of the second section of the medial portion of the trocar body and an inner surface of the shield body, and wherein the biasing means extends between and is in contact with a distal end of the first section of the medial portion and the second shield stop.

16. (Previously Presented) A trocar as defined in Claim 14, wherein the shield stop is a first

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shield stop, and wherein a pin member is connected to the trocar body and cooperates with the shield body to define a second shield stop to thereby provide an auxiliary stop for the shield body when moving to the retracted position.

17. (Previously Presented) A trocar as defined in Claim 14, further comprising a handle including a distal handle portion having a fourth diameter and a proximal handle portion having a fifth diameter, the distal handle portion connected to the proximal first end portion of the proximal portion of the trocar body to provide handling of the trocar by a hand of a user, the fifth diameter of the proximal handle larger than the fourth diameter to provide gripping of the handle by the user.